

Amendment Date: February 11, 2008
Serial No. 10/767,833

REMARKS

Reconsideration of the rejections contained in the Office Action is respectfully requested. By this amendment, the specification has been amended, claims 6, 8, 10, and 18-19 have been canceled without prejudice or disclaimer, claims 1-2, 4-5, 7, 9, 11-13, 16-17, and 20 have been amended. Currently, claims 1-5, 7, 9, 11-17, and 20 are pending in this application. A Drawing Correction Authorization Request is being filed herewith.

Objection to the drawings

The Examiner objected to the drawings as not showing the steps of the several independent method claims. Applicants have canceled all of the independent claims with the exception of independent claim 1, and submit herewith a Drawing Correction Authorization Request to add a new Fig. 13 that illustrates the steps of this independent claim. Applicants have also added text to the specification to describe this figure by adding a new paragraph to the Description of the Drawings section and to amend paragraph 34 to add reference to Fig. 13, blocks 100, 102, and 104. These amendments are all supported by the specification as originally filed in many locations, particularly starting at about paragraph 34 and continuing through paragraph 66. Accordingly, applicants respectfully submit that these amendments do not add new matter to the application. The Examiner is respectfully requested to approve this drawing correction and amendments to the specification when acting on this Amendment.

Rejection under 35 USC 112

Claims 2-3, 6, 9, 16, and 17 were rejected under 35 USC 112, second paragraph, as indefinite. Applicants have amended claim 2 to clarify the "A/Z information." Claim 6 has been canceled rendering the rejection moot with respect to this claim. With respect to claims 9, 16, and 17, applicants have changed "p-cycle" to "logical restoration path", which is a term that is used to describe the "p-cycle" at Paragraph 5 of the specification. In view of these amendments, the Examiner is respectfully requested to withdraw the rejection of the claims under 35 USC 112, second paragraph.

Rejection under 35 USC 101

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Claims 18-20 were rejected under 35 USC 101. Applicant have canceled claims 18-19 and have amended claim 20 to depend on claim 1. In view of these amendments, applicants respectfully submit that this rejection is moot.

Rejection under 35 USC 102

Claims 1-8, and 10-15 were rejected under 35 USC 102 as anticipated by Lu (U.S. Patent No. 5,412,652). Similarly, claims 9, 16, and 17 were rejected under 35 USC 103 as unpatentable over Lu in view of Afferton (U.S. Patent No. 6,278,689). These rejections are respectfully traversed in view of the amendments to the claims and the following arguments.

Conventionally, when traffic was switched from working to protection on a ring network such as a SONET/SDH ring, the same time slot would be allocated to the traffic on protection as was allocated to the traffic on the working path, so that the nodes on the ring would know which transmission unit, e.g. which time slot, on the protection path the connection would be located. (Specification at paragraph 8).

For various reasons, it may be advantageous to allow a given connection to use different time slots as it is transmitted around the ring. Thus, a connection may be on one time slot as it passes on a first link on the ring and shifted to a second time slot on the next link on the ring. While this may have advantages, it complicates the manner in which traffic is put onto protection. Specifically, if a failure occurs, the other nodes on the ring may not know where the traffic was put onto protection, which affects how they receive traffic from the protection path. (Specification at paragraph 9).

One attempt to address this problem was to use a centralized approach, whereby a centralized controller would generate tables and disseminate these tables to the nodes on the ring so that, upon occurrence of a failure, the nodes would know where the traffic would be located. (Specification at Paragraph 11).

Lu, cited by the Examiner, teaches this same type of system. Specifically, Lu teaches that "during the initiation or reconfiguration of a SONET ring, a ring table is downloaded through a communication channel or section DCC channel and is stored in the memory 121 in each of the network elements." (Lu at Col. 7, lines 47-50). Thus Lu, like the admitted prior art at Paragraph 11 of the current application, teaches a centralized approach whereby tables are pre-computed in advance and downloaded to the nodes on the ring. Lu mentions the manner in

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which the tables are provided to the nodes on the ring at several other places, such as at Col. 13, line 66 to col. 14, line 2; Col. 14, lines 11-16; and Col. 14, lines 23-28). Specifically, as described in these sections, the central management system OSS or subnetwork controller (SNC) downloads the tables to all of the nodes. Alternatively, the OSS/SNC will download the table to one of the nodes on the ring and the nodes will transmit the tables between themselves so that they all have exactly the same table. The nodes then use the tables to determine where a connection will be located on protection.

Applicants are proposing an alternative to the use of a centralized approach, in which each network element on the ring is allowed to make an independent determination as to where traffic of particular interest will be located on protection. As described, for example, paragraphs 32-40, as connections are provisioned on the ring, the connection information such as the A/Z information, connection ID, and size information, is provided to all nodes on the ring. Upon occurrence of a failure on the ring, the nodes will determine which connections are affected by the failure. The nodes will then look at the connection information for each of the connections that are affected by the failure, and use the connection information to sort out how the connections will be assigned protection slots on the protection path. An example of a way in which the nodes may allocate protection transmission units is set forth in Paragraph 38. Thus, rather than having tables that are fixed in advance, the nodes calculate the placement dynamically based on the connection information associated with the connections that are affected by the failure.

Applicants have amended claim 1 to further distinguish the admitted prior art and the system described by Lu. Specifically, applicants have amended independent claim 1 to recite a method of determining protection transmission unit allocation on a protection cycle on a communication network by nodes on the protection cycle. By amending the preamble to recite that the protection transmission unit allocation is done "by nodes on the protection cycle" applicants are distinguishing the pre-populated tables that were used in the admitted prior art and Lu.

Applicants have further amended claim 1 to recite that the method includes the steps of distributing connection information associated with flows on the protection cycle to all nodes on the protection cycle; upon occurrence of a failure on the protection cycle, determining, by each node on the protection cycle, which flows are affected by the failure on the protection cycle; and

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determining, by each node on the protection cycle, the protection transmission unit allocation for the flows affected by the failure from the connection information associated with the affected flows. Note that this last step states that the protection transmission unit allocation is determined from the connection information. This is not the way that Lu operates, since Lu determines the protection transmission unit allocation from pre-populated table which have pre-assigned protection assignments contained therein. Accordingly, in view of these amendments, applicants respectfully submit that the claims are not anticipated by Lu and thus request that the Examiner withdraw the rejection under 35 USC 102.

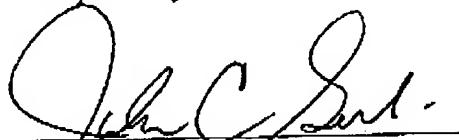
Afferton was cited by the Examiner as teaching a mesh network. Afferton does not address the aspects of the claims described above in connection with Lu, and thus applicants respectfully submit that the combination of Lu and Afferton would not have rendered the claims obvious.

Conclusion

In view of foregoing claim amendments and remarks, it is respectfully submitted that the application is now in condition for allowance and an action to this effect is respectfully requested. If there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

If any fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 502246 (Ref: NN-16220).

Respectfully Submitted



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Title: METHOD AND APPARATUS FOR DETERMINING
PROTECTION TRANSMISSION UNIT ALLOCATION
Attorney Docket No: 16220ROUS01U
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Figure 12

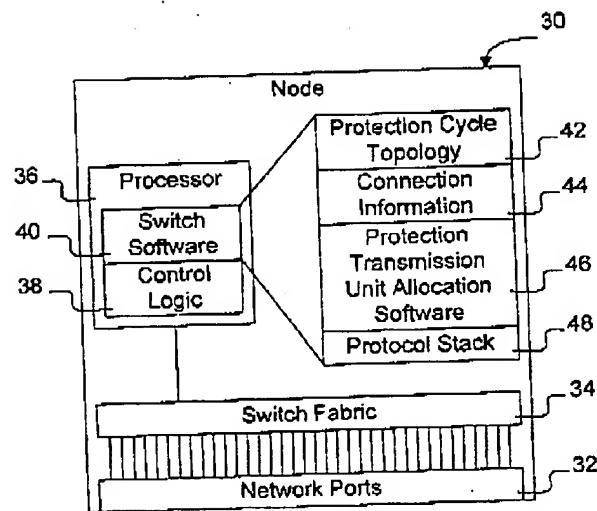


Figure 13

New Figure 13
Added Here